



In vitro efficacy of shampoos containing miconazole, ketoconazole, climbazole or accelerated hydrogen peroxide against *Microsporum canis* and *Trichophyton* species

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ABSTRACT

Dermatophytosis (ringworm) is a highly contagious skin infection resulting in a ring-like pattern, resembling worms, on animals and humans. It is caused by the fungus *Microsporum canis* and *Trichophyton* species. Due to the highly contagious nature of dermatophytosis, proper disinfection of affected surfaces is essential, and treatment of the animal/human is a top priority. Treatment involves systemic antifungal drugs, which eliminate the infection within the hair follicle, and repeated use of a topical antifungal therapy for disinfection of the hair coat. Some of the topical treatments on the market for animals are not always readily available worldwide or sometimes cannot be used in specific situations. This study tests many treatment options and their effectiveness against the fungus, including a relatively new yet proven chemistry for surface disinfection, known as Accelerated Hydrogen Peroxide® (AHP®).

BACKGROUND

The most common topical treatments for ringworm in animals is Lime sulfur and enilconazole, as they have proven efficacy. However, they may not be readily available/approved worldwide and they also have precautions associated with them. Gloves and safety goggles should be worn when treating the animal and contact with the animals' eyes and mouth should be avoided. Even though they are effective, it would be beneficial to provide other effective options, and ones that are safer for animal and human use.

STUDY

The objective of the study was to evaluate the antifungal in vitro efficacy of many shampoo formulations of ketoconazole, miconazole or climbazole and Accelerated Hydrogen Peroxide® against *Microsporum canis* and *Trichophyton* species. The shampoo formulations tested as treatment controls were Lime sulfur and enilconazole since these are the most widely used, but then 8 other shampoo formulations were tested for their effectiveness against ringworm. There were 3 experiments performed; a suspension test, an infected cat hair challenge (10 minute contact time) and an infected cat hair challenge with a 3 min contact time followed by an AHP® leave-on rinse.

RESULTS

For the suspension tests, all test products showed good efficacy. Miconazole, ketoconazole and AHP® showed good efficacy after a 10 minute contact time. Good efficacy was achieved with all test products with a shorter contact time of 3 minutes but only if combined with an AHP® leave-on rinse.

CONCLUSION

AHP® as its own topical treatment showed good efficacy with a 10 minute contact time, and also a 3 minute contact time when combined with an AHP® leave-on rinse. All products used for a 3 minute contact time showed good efficacy, but only if combined with an AHP® leave-on rinse. Lime sulfur and enilconazole, two of the most common topical treatments, continue to show good efficacy, as expected. However, in countries or specific situations where these products cannot be used, shampoos containing ketoconazole, miconazole or climbazole are alternative hair coat disinfectants with a 10 minute contact time. Overall, adding AHP® shampoo to treatment protocols will be an effective alternative to other topical applications. Furthermore, adding AHP® shampoo as a leave-on rinse following any topical treatment will reduce contact time; reducing maceration of hairs and reducing stress on the animal.

IMPLICATIONS FOR AHP

- Most topical antifungal shampoo treatments have a strong odor and some safety precautions to follow. With AHP®, there are no added fragrances or harsh chemical odors, thereby not causing nose blindness.
- The topical use of AHP® is very safe for the animal and the human, as it is non-irritating to the eyes and to the skin, which can result in protocol compliance and ease of use.
- AHP® does not need to be rinsed off as it breaks down into water and oxygen, leaving no active residue behind on the animals' coat.
- AHP® proves its efficacy when it is used as a final rinse following other shampoo uses, as it demonstrates a reduction of all fungal colony forming units when used in this manner.
- AHP® does not need to be thoroughly 'scrubbed' into the coat, only gently massaged, as to prevent maceration of hairs.
- The fact that AHP® demonstrated efficacy at a 3 minute contact time followed by an AHP® rinse provides ease of use for the staff and a less stressful experience for the animal.
- Furthermore, a shorter contact time minimizes the softening of hairs, thus reducing the subsequent release of spores from friable hairs; which is a risk factor for development of new lesions on the animal

REFERENCE

Moriello, K. 2016. In vitro efficacy of shampoos containing miconazole, ketoconazole, climbazole or accelerated hydrogen peroxide against *Microsporum canis* and *Trichophyton* species. *Journal of Feline Medicine and Surgery*, 19(4), 370-374.